UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/543,006	07/22/2005	Takanori Kamoto	0397-0499PUS1	2568

2292 7590 08/01/2007

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER	
SHAH, MANISH S	

ART UNIT	PAPER NUMBER
2853	

NOTIFICATION DATE	DELIVERY MODE
08/01/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/543,006	KAMOTO ET AL.	
	Examiner	Art Unit	
	Manish S. Shah	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/22/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

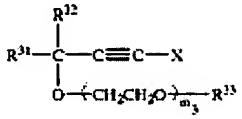
1. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa et al. (# US 2005/0081745) in view of Wider et al. (# US 6071334).

Ogawa et al. discloses:

- An ink composition comprising: (a) an aqueous medium (b) a pigment ([0275]-[0278]); and (c) a compound represented by the following formula ([0293]-[0322]), and the mixed compound of the formula (I) is contained in a critical micelle concentration or above (see Examples).

[0311] The compound represented by the general formula (III) will be described hereinafter.

General formula (III)



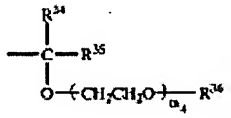
[0312] wherein R^{31} and R^{32} each independently represent a C_1-C_{18} alkyl group.

[0313] Referring further to the general formula (III), R^{31} and R^{32} each independently represent a C_1-C_{18} alkyl group (e.g., methyl, ethyl, n-propyl, butyl, hexyl, octyl, decyl, dodecyl) which may be substituted. Examples of the substituents include alkyl groups (e.g., methyl, ethyl, isopropyl), alkoxy groups (e.g., methoxy, ethoxy), halogen atoms (e.g., chlorine atom, bromine atom), etc. Preferred among these groups represented by R^{31} and R^{32} are C_1-C_{12} unsubstituted straight-chain alkyl groups or unsubstituted branched alkyl groups, and particularly preferred examples of these groups include methyl, ethyl, n-butyl, 2-methylbutyl, 2,4-dimethylpentyl, etc.

[0314] R^{32} represents a hydrogen atom, C_1-C_6 alkyl group or phenyl group, and the alkyl group and phenyl group may be substituted.

[0315] Examples of the substituents on the alkyl group represented by R^{32} include alkyl groups (e.g., methyl, ethyl, isopropyl), alkoxy groups (e.g., methoxy, ethoxy), and phenyl group. Examples of the substituents on the phenyl group represented by R^{33} include alkyl groups (e.g., methyl, ethyl, isopropyl), alkoxy groups (e.g., methoxy, ethoxy), and halogen atoms (e.g., fluoline atom, chlorine atom, bromine atom), etc. Preferred among the groups represented by R^{33} is hydrogen atom or C_1-C_4 alkyl group, particularly hydrogen atom.

[0316] X represents a hydrogen atom or



[0317] in which R^{34} and R^{35} each independently represent a C_1-C_{18} alkyl group. Preferred substituents on R^{34} and R^{35} and specific examples thereof are those selected from the same group as that of R^{31} and R^{32} mentioned above. R^{36} represents a hydrogen atom, C_1-C_6 alkyl group or phenyl group, and its preferred specific examples are substituents and specific examples selected from the same group as that of R^{33} mentioned above.

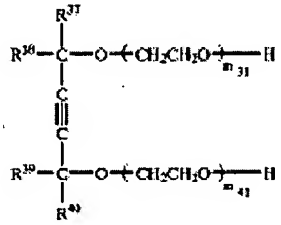
[0318] The suffixes m^3 and m^4 each represent the average number of added moles of ethylene oxide, with the proviso

that the sum of m^3 and m^4 is from 0 to 100, preferably from 0 to 50, particularly from 0 to 40.

[0319] Herein, when m^3 is 0, R^{33} represents a hydrogen atom, and when m^4 is 0, R^{36} represents a hydrogen atom. Further, when X represents a hydrogen atom, m^3 is 1 to 100, preferably from 1 to 50, particularly from 1 to 40.

[0320] Particularly preferred among the compounds represented by the general formula (III) is a compound represented by the following general formula (III-1).

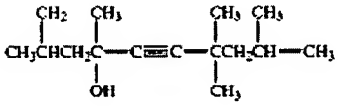
General formula (III-1)



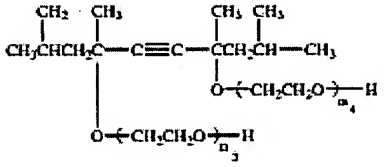
[0321] wherein R^{37}, R^{38}, R^{39} and R^{40} each independently represent a C_1-C_6, preferably C_1-C_4 alkyl group. The suffixes m^{31} and m^{41} each represent the number of added moles of ethylene oxide and the sum of them is from 0 to 40, preferably from 2 to 20.

[0322] Specific examples of the compound represented by the general formula (III) or (III-1) will be given below, but the present invention is not limited thereto.

W5-1

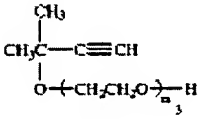


W5-2~6



W5-2: $m_3 + m_4 = 1.3$
W5-3: $m_3 + m_4 = 3.5$
W5-4: $m_3 + m_4 = 10$
W5-5: $m_3 + m_4 = 20$
W5-6: $m_3 + m_4 = 30$

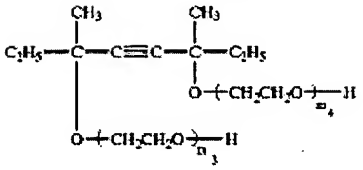
W5-7, 8



W5-7: $m_3 = 5$
W5-8: $m_3 = 10$

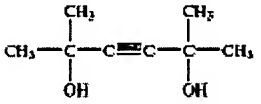
-continued

W5-9, 10

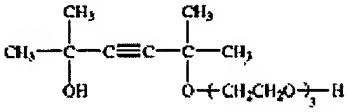


W5-9: $m_3 + m_4 = 5$
W5-10: $m_3 + m_4 = 10$

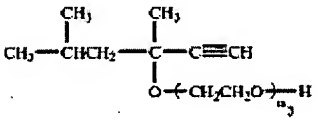
W5-11



W5-12

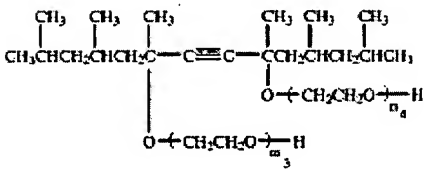


W5-13, 14



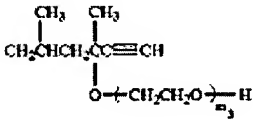
W5-13: $m_3 = 5$
W5-14: $m_3 = 10$

W5-15, 16



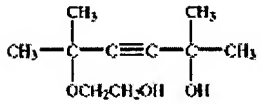
W5-15: $m_3 + m_4 = 8$
W5-16: $m_3 + m_4 = 20$

W5-17, 18

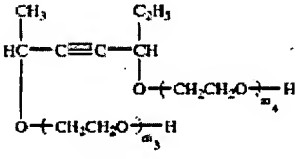


W5-17: $m_3 = 5$
W5-18: $m_3 = 10$

W5-19



W5-20



$m_3 + m_4 = 2$

- The ink composition of comprising 10-70 wt % of a water-soluble organic solvent (see Examples), wherein the water-soluble organic solvent comprises at least one organic solvent having a vapor pressure higher than that of water ([0340]).
- The water-soluble organic solvent is selected from glycol ethers and/or polyhydric alcohols ([0338]).
- The pigment is a self-dispersion type pigment in which a carboxylic acid or a sulfonic acid is introduced on its surface ([0278]).
- The pigment is C.I. Pigment Blue 15:3 or C.I. Pigment Blue 15:4 ([0275]).
- The pigment comprises at least one pigment selected from the group consisting of C.I. Pigment Red 122, C.I. Pigment Red 209 and C.I. Pigment Violet 19 ([0276]).
- The pigment comprises at least one pigment selected from the group consisting of C.I. Pigment Yellow 74, C.I. Pigment Yellows 128 and 138, and C.I. Pigment Yellow 180 ([0277]).
- The pigment is a carbon black ([0278]).
- An ink set comprising the pigment is C.I. Pigment Blue 15:3 or C.I. Pigment Blue 15:4 ([0275]); the pigment comprises at least one pigment selected from the group consisting of C.I. Pigment Red 122, C.I. Pigment Red 209 and C.I. Pigment Violet 19 ([0276]); and the pigment comprises at least one pigment selected from the group consisting of C.I. Pigment Yellow 74, C.I. Pigment Yellows 128 and 138, and C.I. Pigment Yellow 180 ([0277]); and the pigment is a carbon black ([0278]).

- A recording method for recording images comprising allowing an ink composition disclosed above to adhere to a recording medium (see Claim: 23).

- A recording method for recording images comprising applying a pressure to eject drops of an ink and to allow the drops to adhere to a recording medium ([0498]).

- An ink head comprising: (i) an ink tank retaining an ink composition (ii) an ink chamber having an ejection orifice through which drops are ejected, and having the ink composition fed from the ink tank; and (iii) a piezoelectric element provided inside the ink chamber and causing a strain in response to a voltage applied to the ink composition stored in the ink chamber (see Examples; [0498]).

- An ink head comprising: (i) an ink tank retaining an ink composition; (ii) an ink chamber having an ejection orifice through which drops are ejected, and having the ink composition fed from the ink tank; and (iii) a heating element provided inside the ink chamber for heating the ink composition stored in the ink chamber to create a bubble so that a pressure is applied to the ink composition (see Example: [0495]-[0499]).

- A recorded image, which is recorded by using an ink composition (see Examples).

Ogawa et al. differs from the claim of the present invention is that:

(1) The conductivity of aqueous medium is 250 microsecond/cm or lower, and conductivity of ink composition is 8 mS/cm (at 25.degree. C.) or lower.

(2) The water-soluble organic solvent comprises at least one organic solvent having a vapor pressure of 0.05 mmHg or lower at 20.degree. C.

Wider et al. teaches that to get the high quality printed image, ink composition includes, the conductivity of the ink composition is 8 mS/cm (at 25.degree. C.) or lower (see Examples). They also teaches that the water-soluble organic solvent comprises at least one organic solvent having a vapor pressure of 0.05 mmHg or lower at 20.degree. C (0.007) (column: 3, line: 1-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the ink composition of Ogawa et al. by the aforementioned teaching of Wider et al. in order to have a high quality printed image.

Wider et al. explicitly didn't teaches the conductivity of aqueous medium is 250 microsecond/cm or lower. However Wider et al. used water as the aqueous medium, and which is same as applicant claimed invention, so it would have been obvious that the Wider et al. water has same conductivity, which is lower than the 250 microsecond/cm.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manish S. Shah whose telephone number is (571) 272-2152. The examiner can normally be reached on 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Manish S. Shah
Primary Examiner
Art Unit 2853

MSS
7/18/07